

clude that cases of resemblance between cuckoos' eggs and those of the species in whose nests they are deposited, are due to coincidence rendered possible by a large degree of variation in the former." Although digressions are not announced on the title, the latter is wide enough to cover many things, and many odd bits of out-of-the-way knowledge are woven into this book, which is mainly concerned with birds. A rather bitter attack on game preservers and sportsmen (with a slap at the army dropped in) is sandwiched between some most charming studies of wild life and natural scenery, written in clear and powerful and often quaint and humorous style. When has the barn owl been more aptly described than in this passage? "Never a sound from wing or throat as it flaps or skims in the half-light, watching the ground with its cat's eyes as it goes, until suddenly the silence is startled by a single, rasping yell such as might make the hair stand on the back of every mouse for a

*STUDIES OF CLOUDS.*¹
MR. CLAYDEN'S work will be a standard one for all students of clouds. When the now international classification was first proposed by the late Ralph Abercromby and the present writer, our purpose was to devise a classification for common use at all meteorological stations and in all the navies of the world. It is evident that such a classification must be simple and practicable. A great number of forms must lead to constant errors when used by ordinary observers. Therefore we only proposed the ten types given now in the international cloud atlas.

We were well aware, however, and expressed the view in plain words, that these ten forms are not sufficient for special studies of the transformation of clouds or of the relations between cloud form and weather. For these cases each of the ten great types must be divided into several subspecies, to which proper names must be given.

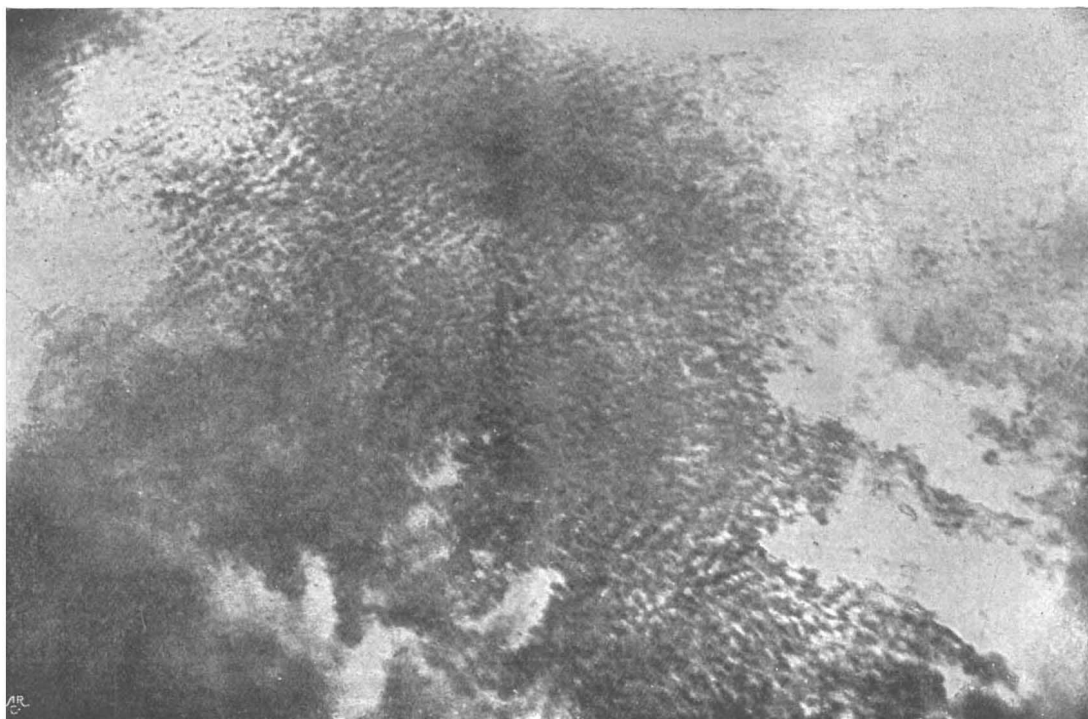


FIG. 1.—Cirro-nebula changing to cirro-cumulus. From "Cloud Studies."

quarter of a mile around. The Arch-mouser is on the trail, and such a master of his craft that he appears at times to toot his horn in contempt of his quarry. Or, is this sudden shriek used to start any mouse that may be lurking below, so that when moving it may be more readily discerned?" Mr. Boraston, too, sometimes wants to know why. The eighteen photographs which illustrate this nicely got up volume are almost beyond praise. We have selected this one for reproduction, not because it is by any means the most beautiful, but because of the cleverness with which the whole of this rock, with its seaweed and its oyster-catchers, has been focused; it will appeal strongly to those who love our west coast and its birds. The whole book will be welcomed and treasured up by the great fraternity of British birdmen.

O. V. APLIN.

Various attempts have been made to extend the scheme in this way. Abbé Maze in France, Prof. Köppen in Germany, the Rev. F. L. Odenbach in America, and, above all, the Rev. Clement Ley in England, have proposed and defined more detailed classifications; and Mr. Clayden has now in his cloud studies taken a great step forward in this direction.

The descriptions and the illustrations reproduced from photographs are excellent, and everyone who is accustomed to observe the ever-changing panorama of skies will admire the large amount of exact observations given in this book. The book contains reproductions of many typical cloud-forms and certain intermediate forms showing the transformation of one cloud-form into another.

¹ "Cloud Studies." By Arthur W. Clayden, M.A. Pp. xiii+184; 61 plates. (London: John Murray, 1905.) Price 12s. net.

It is important to notice that the author accepts the types of the international cloud atlas and arranges his various forms as subforms of these types. There is, however, one exception. Mr. Clayden does not admit the nimbus cloud as a special type, but puts it under the type stratus. He employs nimbus as an adjective indicating that rain is falling from a cloud. We cannot agree with this plan. Every form of cloud can be transformed into another. It is, indeed, well known that the true typical forms are rare, the majority of clouds being intermediate forms. Of course, it often happens that stratus cloud is transformed to nimbus. The farmer in Sweden says, "if the fog is falling the weather will be fine, if the fog is lifting it comes back as rain." It is really the case that in certain weather conditions the fog follows the upward motion of the air; in the rising air the temperature falls, condensation goes on, and the light fog is transformed to a dense nimbus with rain.

of clouds to a work of the greatest value, which should be studied with the greatest care. No one who desires to study the transformations of clouds or the relation of cloud forms to weather can neglect to consider the valuable results and ideas put forward by Mr. Clayden.

Of course, it is not possible for an international committee or conference to establish a very detailed classification of clouds, but we think it would be very useful if the author would provide the plates and short descriptions as a small atlas for use in observatories and for specialists.

H. HILDEBRAND HILDEBRANDSSON.

TRANSPACIFIC LONGITUDES.

DURING the year 1903 Canada extended the longitude work, carried from Greenwich to Vancouver, across the Pacific to Australia and New Zealand. This was made possible by the completion of the British

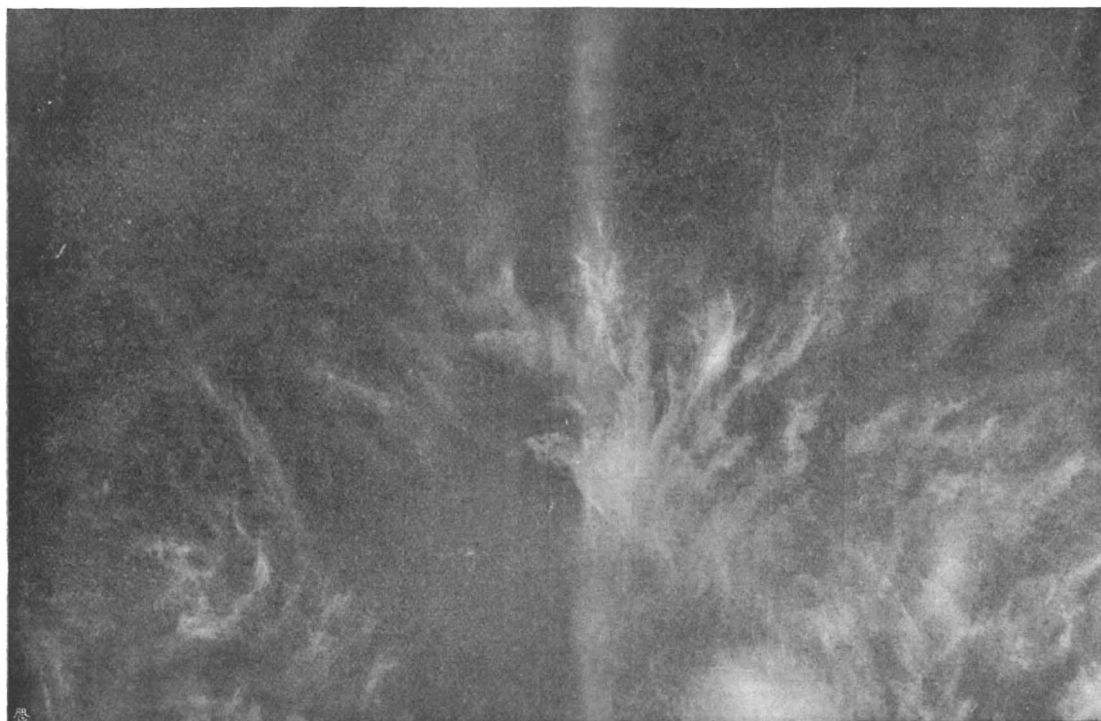


FIG. 2.—High Cirrus (*Cirrus Excelsus*.) From "Cloud Studies."

Nevertheless, there is a vast difference between the fog formed on or near the ground and the true canopy of nimbus cloud rushing forward beneath a layer of alto-stratus in the front of a storm. But here, as always, one form does sometimes pass into another. The alto-stratus does also sometimes sink down and become transformed into nimbus. We know that during summer all low clouds, as a rule, assume more or less the cumulus form. Thus we cannot say that a stratus or an alto-stratus is a nimbus more than that a stratus or a nimbus is a cumulus.

It is not possible to give in this short notice a description of the different forms presented in this book. We must also abstain from an exposition of the author's views regarding the causes which produce the different cloud forms. These views are in most cases highly probable, and in all cases useful hints are given for further investigations. Our purpose now is only to direct the attention of our fellow-students

Pacific Cable—the All Red Line—in the autumn of 1902. The sections of the cable are:—

	Nautical miles
Vancouver to Fanning Island... ..	3654
Fanning to Suva, Fiji... ..	2181
Suva to Norfolk Island... ..	1019
Norfolk to Southport, Queensland... ..	906
Southport to Doubtless Bay, New Zealand... ..	513

The observers (Dr. Otto Klotz and F. W. O. Werry) were provided with practically identical instruments, the principal ones being the two Cooke transits, of 3 inches clear aperture, and of about 36 inches focal length. Cement or brick piers were built at every station. The observers occupied alternate stations across the Pacific, and as the number of stations is odd, Southport and Doubtless Bay are free from the personal equation, without a direct determination of the latter, although the personal equation was determined. Mr. Werry occupied Fanning and Norfolk,